MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2210)

BTM3614 –TECHNOLOGY MANAGEMENT

(All sections / Groups)

7 FEBRUARY 2023
9:00 AM – 12:00 PM
(3 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **FOUR (4)** pages excluding cover page with **FIVE (5)** questions only.

2. Attempt **ALL** the questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the answer sheet provided.

ANSWER ALL QUESTIONS

QUESTION 1

a) Getting all employee to involve in the innovation process is challenging. Identify FOUR (4) individual characteristics that encourage innovation in the organisation.

(12 marks)

b) Differentiate between continuous technology and radical technology. Give TWO (2) examples for each type of technology.

(8 marks)
(Total: 20 marks)

QUESTION 2

a) Innovation can be both product-based or process-based. Define product innovation and process innovation. Suggest and explain ONE (1) recent example for each type of innovation.

(8 marks)

b) Explain the FOUR (4) elements of innovation implementation.

(12 marks)
(Total: 20 marks)

QUESTION 3

a) Illustrate and explain the Evaluation and Control process in general.

(10 marks)

b) As a consultant of Technology Management, explain strategic alliances to your client and propose THREE (3) dimensions that your client needs to consider while forming the alliances.

(10 marks)
(Total: 20 marks)

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QUESTION 4

a) Culture has emerged as one of the dominant barriers to effective integrations. Suggest FOUR (4) effective ways to form the culture while integrating the firms.

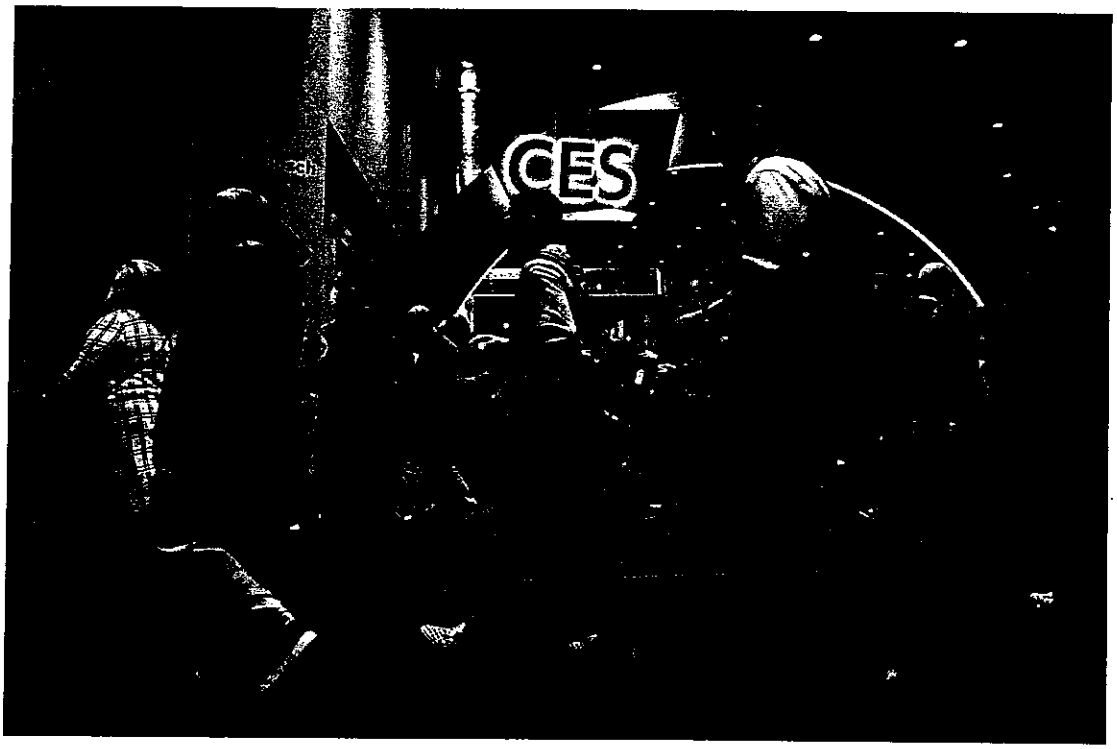
(12 marks)

b) Suggest and explain any FOUR (4) intermediate term predictions of the future in planning.

(8 marks)
(Total: 20 marks)

Case Study

Tech at CES shows how farmers can save time, money and the environment



CES, the world's largest annual consumer technology trade show, features about 3,200 exhibitors showing off their latest products and services to more than 100,000 attendees. — AFP

LAS VEGAS: Armed with a smartphone in today's ever more connected world, farmers can remotely monitor the health of their fields, the level of feed in their silos or even the aging of wine in barrels.

Both start-ups and agro-industry giants are exhibiting such cutting-edge tools – tools to help farmers collect and analyse data and improve decision-making – at the huge CES electronics show in Las Vegas.

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Thus, Olivier Lepine, who heads the French start-up Brad, has developed a sensor that can provide real-time information on temperature, moisture and light falling in a farm field.

With such data in hand, farmers can make more accurate decisions on when to irrigate, how to reduce pesticide use, and how to treat their soil - while saving time normally spent traveling from field to field.

Farmers, and especially younger ones, "want to have an impact, but they also want to have a quality of life," Lepine said.

South Korean start-up AimbeLab meantime is offering a way to monitor the contents of the huge silos where grains and feed are stored.

Farmers often "simply use a hammer to bang onto the silos to check the sound – which is still very inaccurate – to see how much they have left," said Sein Kwon.

AimbeLab's probe not only assesses the amount of grain in a silo but also its condition, allowing both the farmer and his suppliers to better anticipate deliveries and thus reduce trips.

Saving on herbicides

Simple Labs, an American start-up, has developed a sensor capable of measuring the temperature, humidity, pH value and phenolic content – which affects both taste and colour – of wine in a barrel or vat, allowing more precise control over aging.

And Meropy, a French company, is exhibiting a sort of alien-looking wheel – with long spokes extending on either side – that can roll through a field and use its cameras to photograph crops from all angles, detecting the presence of weeds, pests or disease.

The "two main drivers to adoption of new technologies," said Amit Dhingra, a horticulture professor at Texas A&M University, are "the need, like when a disease appears, and the quest for the most cost-efficient ways."

David Friedberg, who heads The Production Board, a California investment firm specialising in agricultural technology, put it simply: Farmers need to produce "more calories per acre with less inputs" – like pesticides – through genomics, digitisation and data analysis.

John Deere, the giant farm-equipment maker famous for its green tractors, is also working on this.

The huge, 120-foot (36-metre) booms on its newest sprayer-tractors have cameras every few feet and very fast processors that, even as the vehicle rumbles along at 12 miles per hour (20 kph), can detect weeds and spray only where needed.

"Instead of having to spray 100% of the field, we spray only about a third of the field and we save on chemicals," said Jorge Heraud, Deere's head of automation.

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Drowning in data

The group has also developed an "Operations Center" available on computer or smartphone that allows farmers, thanks to data collected by multiple sensors on tractors, to monitor real-time information on their location, engine performance and so on. They can also review how seed trials are progressing or find where weeds are proliferating.

"The farmer can look at the map and understand what part of the field he needs to manage differently," said Lane Arthur, the product's designer.

"He's going to save some money but he's also going to help the environment."

As in other industries, said Vonnie Estes, head of innovation for the International Fresh Produce Association (IFPA), "farmers are starting to digitise their work."

Combined with increasing automation, data analysis can help solve problems of labour shortages – by knowing where workers are on a farm – of food waste in the supply chain or of greenhouse gas emissions.

"It's not seamless," said Estes, noting that broadband connections are not always available, or reliable, in the countryside.

Another challenge, she said, is that a flood of technical data can be overwhelming.

"Everyone is talking about 5G," Estes said, but "a lot of farmers would be happy with 3G." – AFP

Sourced from: https://www.thestar.com.my/tech/tech-news/2023/01/10/tech-at-ces-shows-how-farmers-can-save-time-money-and-the-environment

QUESTION 5

a. What are the benefits the farmers can gain from the innovation and technology today?

(5 marks)

b. What are the possible challenges that the farmers might face during the technology adoption?

(5 marks)

c. Suggest which strategic move should the farmers apply for obtaining technology. Why?

(10 marks)
(Total: 20 marks)

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